

PATENT CLAIMS

1. High-speed rotor, in particular permanent-magnet rotor (1) for dynamoelectric machines of high power density, comprising at least one spindle (2) and a cylindrical sheath (4) coaxial with the spindle (2), and also a number of bodies (3) that are distributed between the spindle (2) and the cylindrical sheath (4), characterized in that a cavity-filling, compressed and cured filling compound is used for the pretensioned sealing and rigid joining of said parts (1, 2, 3, 4).
2. High-speed rotor according to Claim 1, characterized in that the spindle (2) has at least one spindle shoulder (2g, 2h) and/or at least one spindle nut (2x) and at least one annular channel (2i) that lies between the spindle shoulder (2g, 2h) and/or the spindle nut (2x), and also at least one supply channel (2m) for feeding the filling compound.
3. High-speed rotor according to Claims 1 and 2, characterized in that the supply channel (2m) of the spindle (2) is connected to preferably symmetrically distributed supply channels (2k) and to at least one recess (2j) of the spindle (2).
4. High-speed rotor according to Claims 1 to 3, characterized in that there lies between the spindle shoulder (2g, 2h) and/or spindle nut (2x) an annular channel (2i) that is used to receive the permanent magnets (3, 3a to 3c), and in that inserts (5a to 5d)

made of electrically and magnetically neutral materials are used for the segmented positioning of the permanent magnets (3a to 3c).

- 5 5. High-speed rotor according to Claims 1 to 4, characterized in that cylindrical shell-type armouring (4a) is situated on the spindle shoulders (2g, 2h).
- 10 6. High-speed rotor according to Claims 1 to 4, characterized in that the cylindrical shell-type armouring (4b) is clamped between two spindle nuts (2x) or a spindle shoulder (2g) and a spindle nut (2x).
- 15 7. High-speed rotor according to Claims 1 to 6, characterized in that externally and internally centring washer rings (7a, 7b), preferably having spacing knobs (8) are used to seal the points of
20 contact of the spindle (2, 2g, 2h, 2x) and the armouring (4a, 4b).
- 25 8. High-speed rotor according to Claims 1 to 6, characterized in that a cuff strengthened with sheet metal and having sealing lips made of natural or synthetic rubber (9) is used to seal the points of contact of the spindle (2, 2g, 2h, 2x) and the armouring (4a, 4b).
- 30 9. Method of producing a high-speed rotor according to Claims 1 to 8, characterized in that the rotor (1) is placed in a centring ring (6) preferably guided by the

rotor spindle (2) to limit the asymmetrical expansion of the armouring (4a, 4b).

10. Method of producing a high-speed rotor according to
5 Claims 1 to 9, characterized in that the rotor (1) is thermally treated in places.
11. Method of producing a high-speed rotor according to
10 Claims 1 to 10, characterized in that the rotor (1) is statically and dynamically counterbalanced by controlled abrasion of parts contributing to mass.